



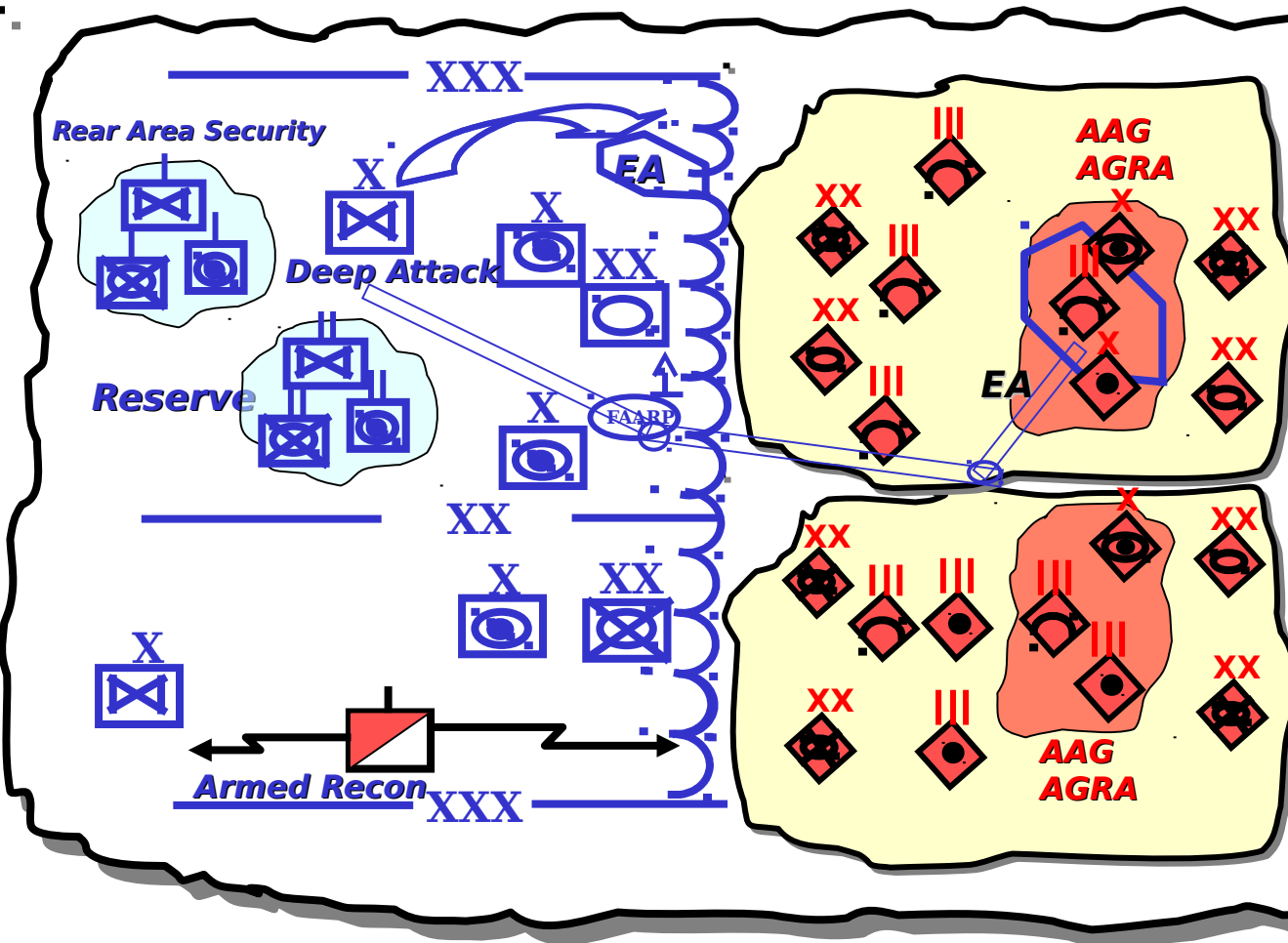
Strategic Overview of the Threat Construct



OLD PARADIGM

Defensive Counterattack

Offensive



Roles

- Deep Operations
- Close Air Support
- Lift/Air Assault
- C2

Conditions

- Linear Battlefield
- Rear Areas (Sanctuary)
- Massed Formations
- Defensive ADA
- Area Lethal SEAD possible

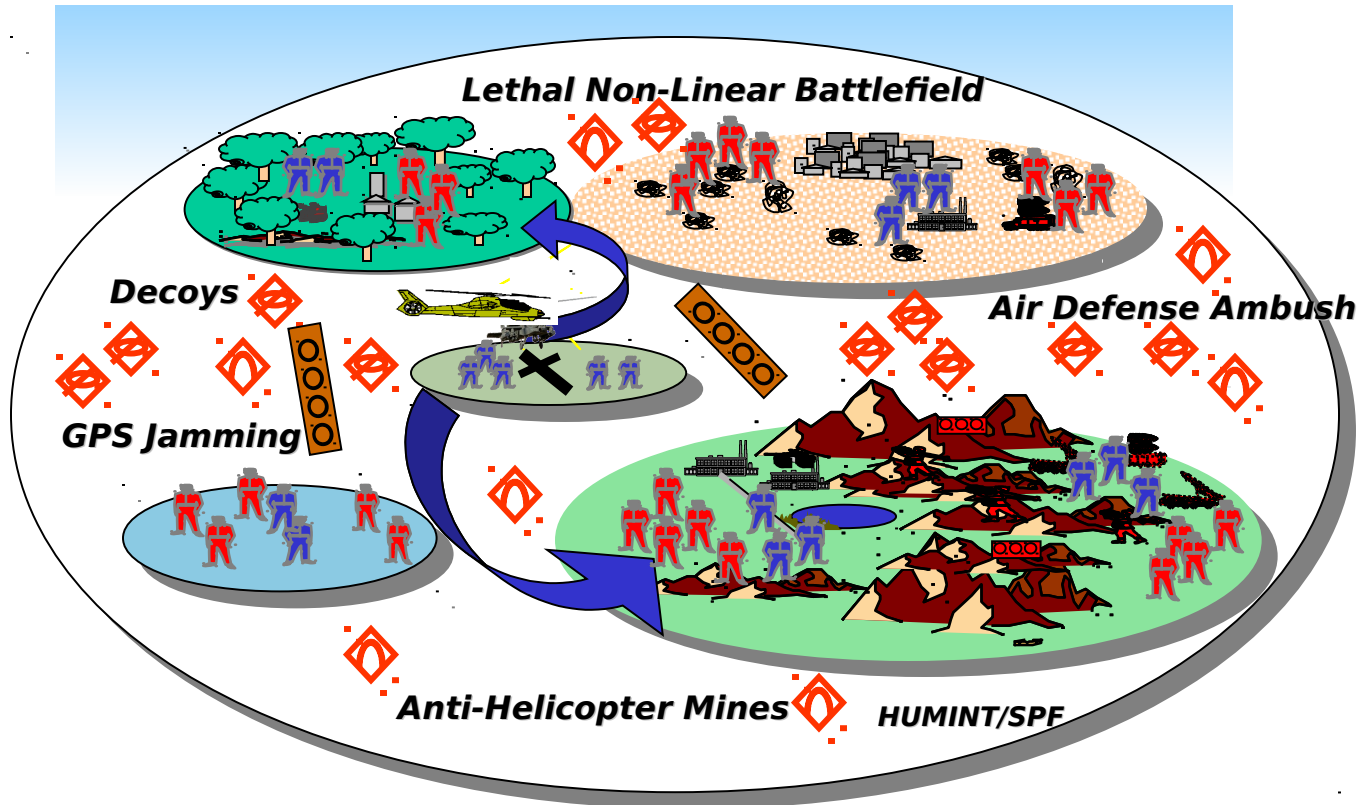
Threats

- Air/Missile Attacks to Airfields
- SOF Attacks/WME
- Artillery/Rocket Attack to FARP
- IAD- Protecting Targets and Along Routes
- EW- Jamming Coms, Radars and GPS
- EMP
- Conventional, Non-Air

NEW PARADIGM

Offensive

Defensive



Recon Fires Complex
Recon Strike Complex
Military Systemology

Roles

- Deep Operations
- Close Air Support
- Lift/Air Assault
- C2

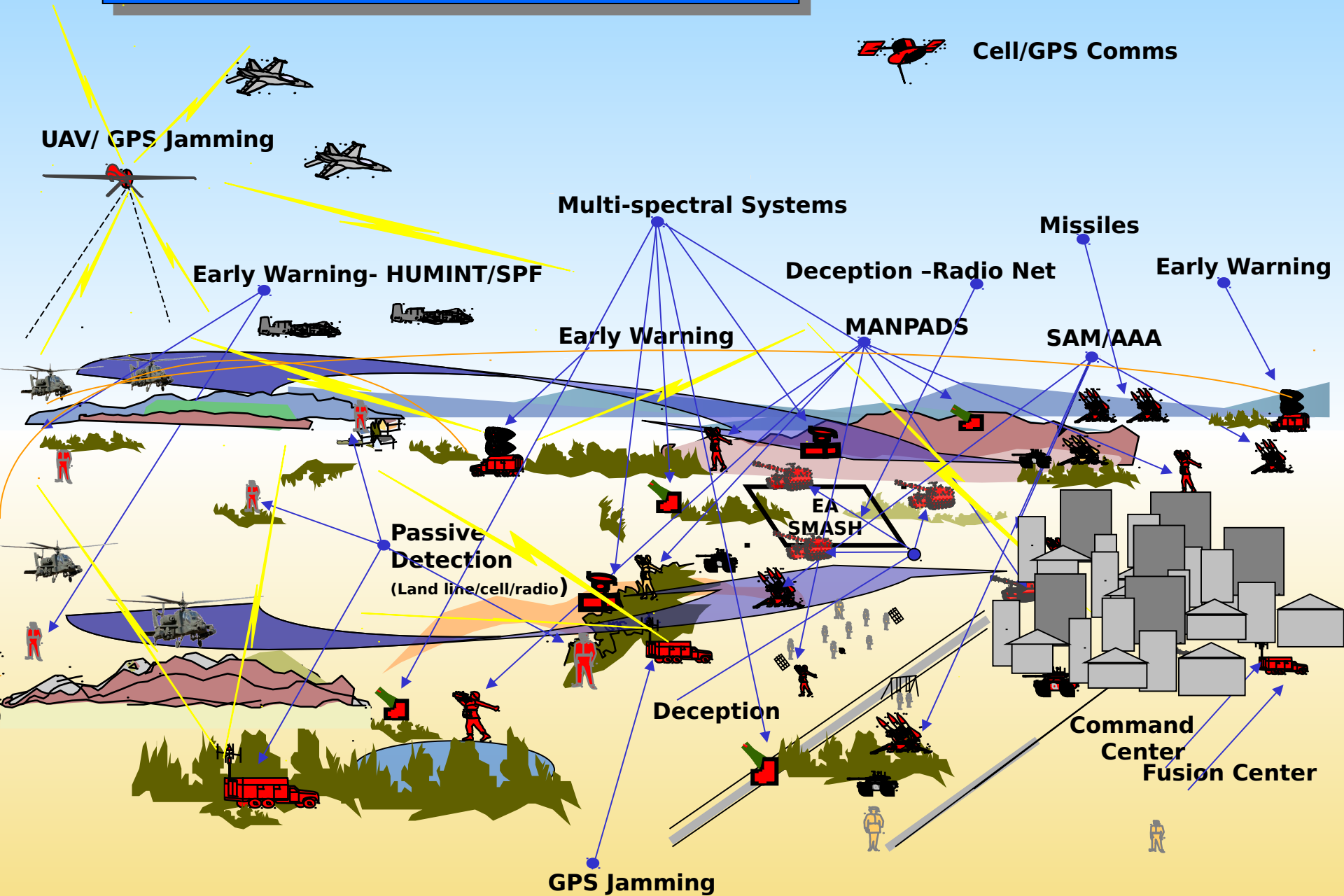
Conditions

- Non-Linear Battlefield
- No Rear Areas (No Sanctuary)
- Offensive ADA
- Dispersed Targets
- Expanded ISR
- Precision SEAD Required

Threats

- Air/Missile Attacks
- WME
- Direct Fires
- SOF
- Artillery/Rocket Attacks
- Passive Sensors
- EW- Jamming Coms, Radars and GPS
- EMP

Threat Air Defense



Armed Reconnaissance Role

**Allows Commander
Unimpeded
and Rapid Movement
Throughout Battlespace**

UAV/ GPS Jamming

Threat Air Defense Ambush

Early Warning

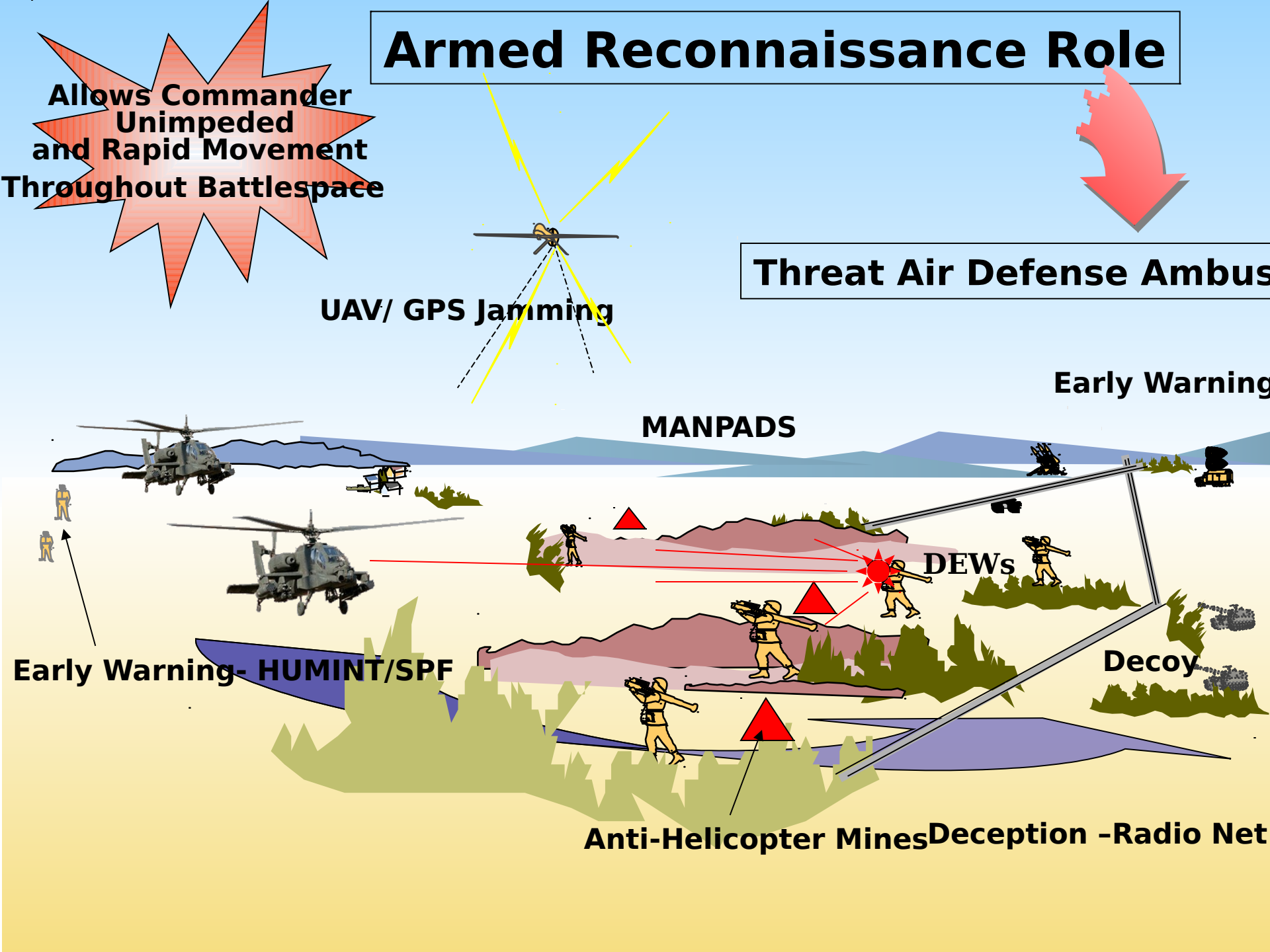
MANPADS

DEWs

Decoy

Early Warning- HUMINT/SPF

Anti-Helicopter Mines Deception -Radio Net



Close Operations Role

**Gain Information
Superiority
and SA
Deny Enemy IO**

UAV/ GPS Jamming

MANPADS

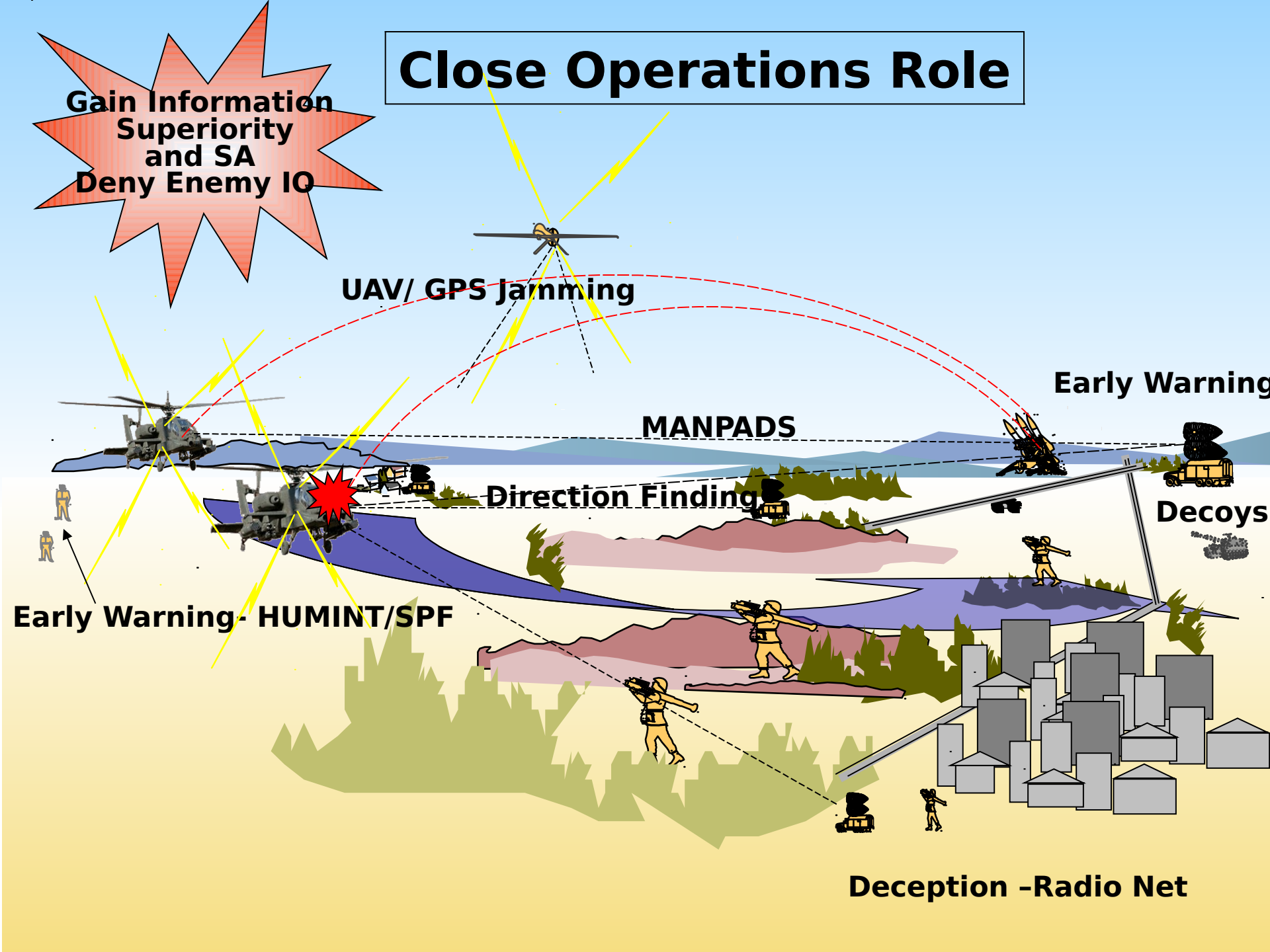
Direction Finding

Early Warning

Decoys

Early Warning- HUMINT/SPF

Deception -Radio Net



Deep Attack Role

**Fleeting Enemy,
Maximizes CCD,
Minimal Time
to React,
Uses IADS**

UAV/ GPS Jamming

Threat Air Defense System Protection

MANPADS

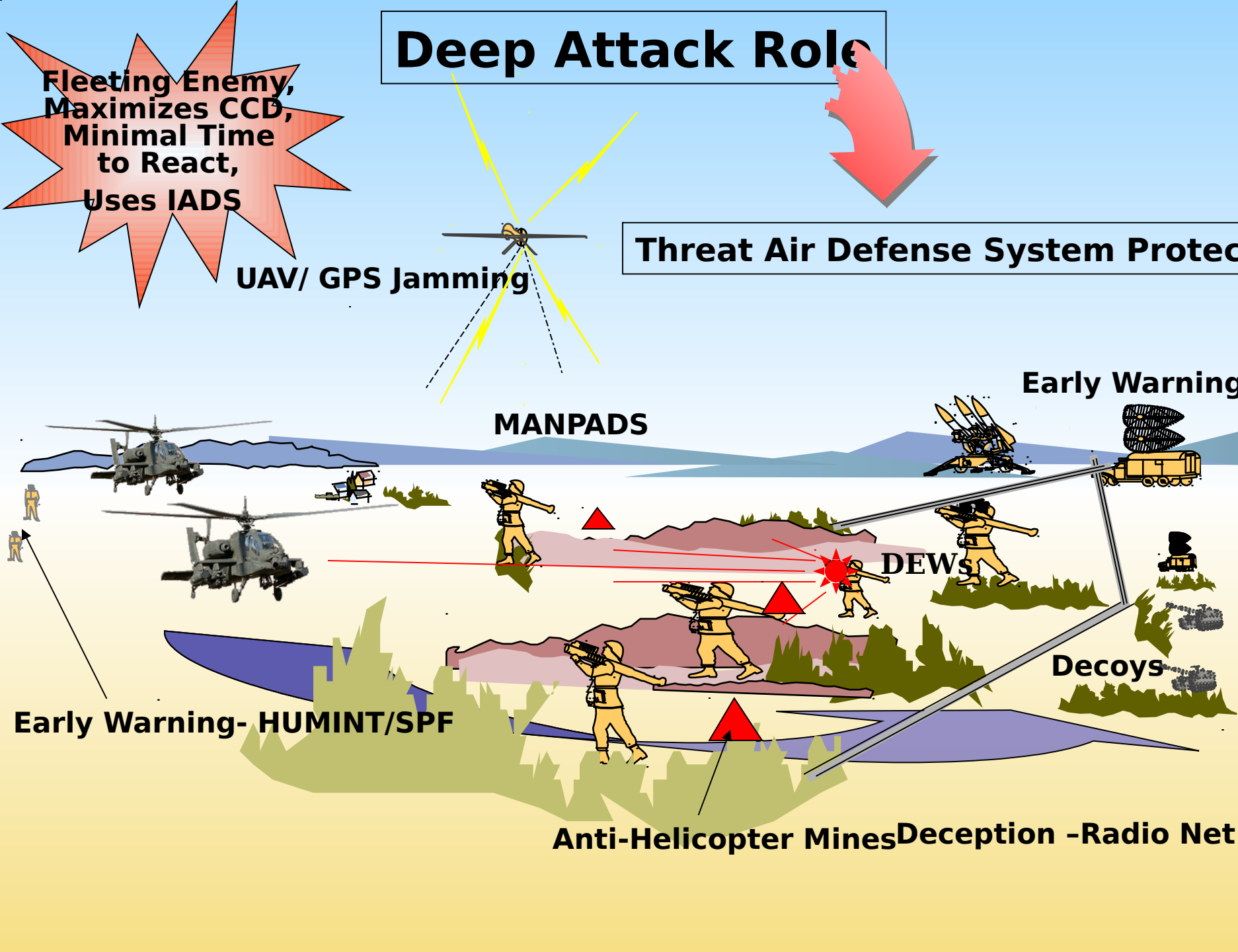
Early Warning

DEWS

Decoys

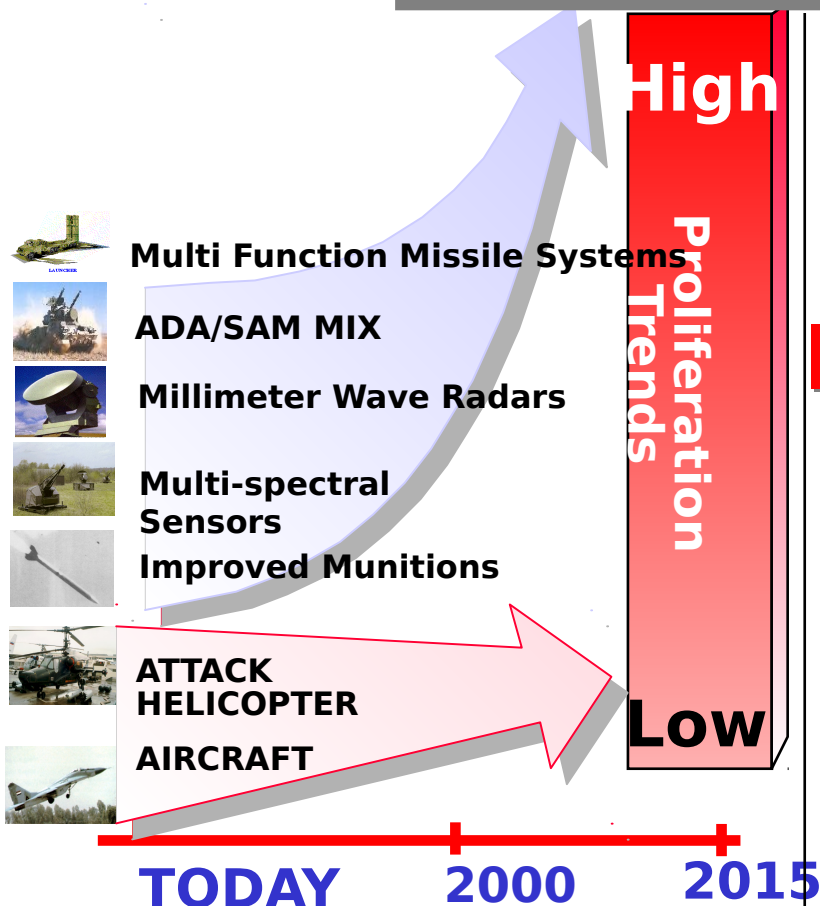
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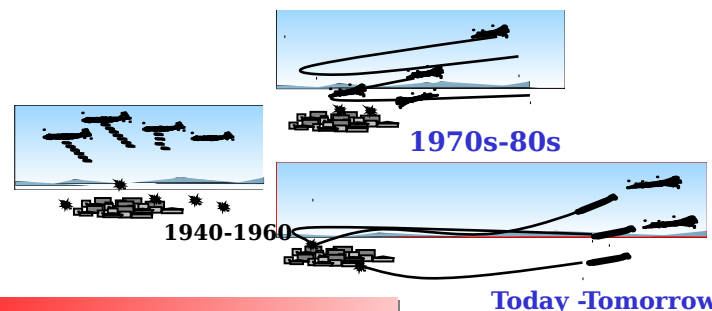
General Air Defense Trends (U)

WHY IT'S CHANGING



EVOLUTION CHARACTERIZED BY CHANGE IN THE TARGET SET

Applying Lessons Learned... Adoptive and Adaptive



Emerging Capabilities

Multi-spectral sensor integration

NOE/OTH Radar capability

Integration of gun and missile

Advanced munitions

Enhanced targeting

Emerging Strategies

Opportunistic in nature

Redundant C3I

Dispersed, Integrated, and Decentralized engagement

Mixed automated and manual tracking-- win war of weather

Maximum use of complex terrain

Non Traditional Air Defense Employment ...
Air Defense Ambush

AD Missile Trends

- ***Dual Mode Seeker***
- ***Salvos***
- ***Multi-missile Guidance Capability***
- ***Target Priority TBM, Cruise Missile and Aircraft***
- ***Increased Range***



Strategies

Mobility

Target C2ISR

Increase Blue Air Stand-off

Reduce Cruise Missile Threat

Tactical System Trends

- **Networked Systems**
- **Airburst Munitions**
- **Advanced Signal Processing**
Improved Clutter Processing
Target Recognition
- **Combination ADA/SAM Systems**
- **Sensor Integration**
Radar/EO
- **All Weather Targeting**



Strategies

Passive Intercept
Point Target Defense
Air Defense Ambush
Not Tied to Troops

AD Radar Trends

- **Millimeter Wave**
Reduce Ground “Clutter”
Hover detection
- **Phased Array**
- **Low Probability Of Intercept**
Low peak power
Frequency Modulated
High Operating Frequency
- **Advanced Signal Processing**



Strategies
Complimentary Systems
Redundant
Sensor Fusion

MANPADS Trends

- ***Improved Radar and Infrared Guidance***
- ***Improved Seekers***
- ***Increased range***
- ***All Aspect engagement Capability***
- ***Increased Countermeasure Capability***



Mistral



Stinger

Strategies
Offensive
Ambush

UAV - Trends

Attack UAV

- **TARGETS**
 - AIR DEFENSE RADARS
 - ARMOR
 - C2
 - **PASSIVE SENSORS**
 - IR
 - RF SEEKERS
 - ACOUSTIC
 - **SMALL WARHEADS**
 - HE - POSSIBLE CHEMICAL
 - FRAG - POSSIBLE BIOLOGICAL
- 40 + countries developing/using UAVs
 • Difficult to detect, track, and destroy
 • UAVs are proven force multipliers



Strategies

Reduce Air Force Requirement
 Near Real Time Intelligence
 Degrade Digitized Battlefield
 Preserve Force

Reconnaissance UAV



Electronic Warfare UAV



Dispensing Jammer/EMP Burst

Dedicated Comms Jammer

Aircraft Trends

- ***Increased Use Of PGMs/Cruise Missiles***
- ***Increased Stand-off Range***
- ***Reduced Radar Cross Section***
- ***Increased Aircraft Survivability***
- ***Increased Multi-role Variants***



Strategies
Regional Dominance
Potential Air Threat
Survivability vs Attack

AIRCRAFT CAN STILL REPRESENT A LETHAL THREAT..



Helicopter Trends

- **Increased Stand-off Range**
- **Improved Accuracy**
- **Better Night & Adverse Weather Capability**
- **Improved Aircraft Survivability Systems**
- **Improved IR Signature Reduction Technology**



Strategies

Regional Overmatch

Reconnaissance

Limited Attack w/ Conditions

Attack Helicopters Are A Dangerous Threat To The Maneuver Force

Aviation Implications

Aviation Operational Environment Highlights:

- a wider spectrum of operations, increased threat technological capability and unpredictability leading to a more **complex and challenging range of operating environments** . .
- In association with an Adaptive and Adoptive Threat
- **A Challenge for Independent Maneuver**
- **Suggests Combined Arms operations**
- **Extremely lethal, offensively oriented air defense environment**
- **Degradation of U.S. technological superiority**
- **Changed target sets**
- **Challenges US preferred method of Warfare....Standoff, Precision**



Emerging Military Capabilities



Urban/Complex Terrain



Asymmetric Threats



Emerging Military Strategies